FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	M120477	Client:	Alaskan Copper Works
Date Received:	09/05/08	Project:	PO M120477, F&BI 809042
Date Extracted:	09/08/08	Lab ID:	809042-01 x10
Date Analyzed:	09/10/08	Data File:	809042-01 x10.013
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	hr

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	102	60	125
Indium	92	60	125
Holmium	92	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	13,900
Arsenic	14.3
Selenium	<10
Silver	<10
Cadmium	<10
Barium	57.2
Lead	114

Analysis For Total Metals By EPA Method 200.8

Client ID:	M120477	Client:	Alaskan Copper Works
Date Received:	09/05/08	Project:	PO M120477, F&BI 809042
Date Extracted:	09/08/08	Lab ID:	809042-01
Date Analyzed:	09/10/08	Data File:	809042-01.014
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	hr

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	169 vo	60	125
Indium	91	60	125
Holmium	93	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	8,070 J
Arsenic	13.9
Selenium	1.35
Silver	1.55
Cadmium	1.78
Barium	53.3
Lead	103

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Alaskan Copper Works
Date Received:	Not Applicable	Project:	PO M120477, F&BI 809042
Date Extracted:	09/08/08	Lab ID:	I8-344 mb
Date Analyzed:	09/10/08	Data File:	I8-344 mb.008
Matrix:	Soil	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	hr

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	92	60	125
Indium	90	60	125
Holmium	92	60	125

Analyte:	Concentration mg/kg (ppm)
Chromium	<1
Arsenic	<1
Selenium	<1
Silver	<1
Cadmium	<1
Barium	<1
Lead	<1

Date of Report: 09/11/08
Date Received: 09/05/08
Project: Metals, PO M120477, F&BI 809042
Date Extracted: 09/08/08
Date Analyzed: 09/09/08

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Total Mercury
M120477 809042-01	0.29
Method Blank	<0.2

Date of Report: 09/11/08
Date Received: 09/05/08
Project: Metals, PO M120477, F&BI 809042

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 808330-03 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Chromium	mg/kg (ppm)	7.97	8.75	9	0-20
Arsenic	mg/kg (ppm)	4.30	4.45	3	0-20
Selenium	mg/kg (ppm)	<1	<1	nm	0-20
Silver	mg/kg (ppm)	<1	<1	nm	0-20
Cadmium	mg/kg (ppm)	<1	<1	nm	0-20
Barium	mg/kg (ppm)	36.9	36.4	1	0-20
Lead	mg/kg (ppm)	10.8	11.7	8	0-20

Laboratory Code: 808330-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chromium	mg/kg (ppm)	50	7.97	85	50-150
Arsenic	mg/kg (ppm)	10	4.30	94 b	50-150
Selenium	mg/kg (ppm)	5	<1	78	50-150
Silver	mg/kg (ppm)	10	<1	96	50-150
Cadmium	mg/kg (ppm)	10	<1	96	50-150
Barium	mg/kg (ppm)	50	36.9	94 b	50-150
Lead	mg/kg (ppm)	50	10.8	97 b	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	mg/kg (ppm)	50	103	70-130
Arsenic	mg/kg (ppm)	10	103	70-130
Selenium	mg/kg (ppm)	5	101	70-130
Silver	mg/kg (ppm)	10	102	70-130
Cadmium	mg/kg (ppm)	10	100	70-130
Barium	mg/kg (ppm)	50	98	70-130
Lead	mg/kg (ppm)	50	107	70-130

Date of Report: 09/11/08
Date Received: 09/05/08
Project: Metals, PO M120477, F&BI 809042

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Laboratory Code: 808330-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Mercury	mg/kg (ppm)	0.125	<0.2	103	108	50-150	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	mg/kg (ppm)	0.125	95	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probablility.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - The analyte indicated was found in the method blank. The result should be considered an estimate.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - The sample was extracted outside of holding time. Results should be considered estimates.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The pattern of peaks present is not indicative of diesel.

y - The pattern of peaks present is not indicative of motor oil.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
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September 11, 2008

DUPLICATE

INVOICE #08ACU0911-1

Accounts Payable
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

RE: Project Metals, PO M120477, F&BI 809042 - Results of testing requested by Gerry Thompson for material submitted on September 5, 2008.

1 sample analyzed for RCRA Metals by Method 200.8/1631E @ $156 per sample	$ 156.00
Rush Charges (48 hr) 75% of $156.00	117.00
Amount Due	$ 273.00

FEDERAL TAX ID # (b) (6)

809042

SAMPLE CHAIN OF CUSTODY

ME 09/05/08 AI4

Send Report To: Gerald Thompson
Company: Alaskan Copper Work
Address: 628 S. Hanford St
City, State, ZIP: Seattle WA 98134
Phone #: 206-571-6033 Fax #: 206-382-4308

SAMPLERS (signature): [signature]

PROJECT NAME/NO.: Metals

PO #: M120477

REMARKS: Call with verbals

Page # ____ of ____

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☒ RUSH ASAP
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	RCRA 8					Notes
M120477	01	9/5/08	12:00pm	Soil	1							X					

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Gerald Thompson	ACW	9/5/08	1:49pm
Received by: [signature]	Nhan Phan	FeBI	9/5/08	1:49
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC

Samples received at 24 °C

AKC-0006059

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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September 11, 2008

Gerry Thompson, Project Manager
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

Dear Mr. Thompson:

Included are the results from the testing of material submitted on September 5, 2008 from the Metals, PO M120477, F&BI 809042 project. There are 7 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
ACU0911R.DOC